

## **ATROPEN AUTO-INJECTOR - atropine sulfate injection**

Meridian Medical Technologies, Inc.

### **Rx Only**

FOR USE IN NERVE AGENT AND INSECTICIDE POISONING ONLY

**CAUTION! PRIMARY PROTECTION AGAINST EXPOSURE TO CHEMICAL NERVE AGENTS AND INSECTICIDE POISONING IS THE WEARING OF PROTECTIVE GARMENTS INCLUDING MASKS DESIGNED SPECIFICALLY FOR THIS USE.**

**INDIVIDUALS SHOULD NOT RELY SOLELY UPON ANTIDOTES SUCH AS ATROPINE AND PRALIDOXIME TO PROVIDE COMPLETE PROTECTION FROM CHEMICAL NERVE AGENTS AND INSECTICIDE POISONING.**

**SEEK IMMEDIATE MEDICAL ATTENTION AFTER INJECTION WITH ATROPEN®.**

**A STERILE SOLUTION FOR INTRAMUSCULAR USE ONLY**

### **DESCRIPTION**

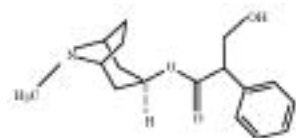
Each prefilled auto-injector provides a dose of the antidote atropine in a self-contained unit, specially designed for self or caregiver administration. Four strengths of AtroPen® are available; they are AtroPen® 0.25 mg, AtroPen® 0.5 mg, AtroPen® 1 mg, and AtroPen® 2 mg.

When activated the AtroPen® 0.25 mg dispenses 0.21 mg atropine base (equivalent to 0.25 mg atropine sulfate). The AtroPen® 0.25 mg delivers 0.3 mL of sterile pyrogen-free solution containing citrate buffer, sodium chloride and Water for Injection. The pH range is 4.0-5.0.

When activated, the AtroPen® 0.5 mg dispenses 0.42 mg atropine base (equivalent to 0.5 mg atropine sulfate), the AtroPen® 1 mg dispenses 0.84 mg atropine base (equivalent to 1 mg atropine sulfate), and the AtroPen® 2 mg dispenses 1.67 mg atropine base (equivalent to 2 mg atropine sulfate). Each 0.5 mg, 1 mg and 2 mg AtroPen® delivers atropine in 0.7 mL of sterile pyrogen-free solution containing glycerin, phenol, citrate buffer and Water for Injection. The pH range is 4.0-5.0.

After the AtroPen® Auto-Injector has been activated, the empty container should be disposed of properly (see **DOSAGE AND ADMINISTRATION**). It cannot be refilled, nor can the protruding needle be retracted.

Atropine, an anticholinergic agent (muscarinic antagonist), occurs as white crystals, usually needle-like, or as a white, crystalline powder. It is highly soluble in water with a molecular weight of 289.38. Atropine, a naturally occurring belladonna alkaloid, is a racemic mixture of equal parts of d- and l-hyoscyamine, whose activity is due almost entirely to the levo isomer of the drug. Chemically, atropine is designated as 1 H,5 H-Tropan-3 -ol (±) -tropate. Its empirical formula is C<sub>17</sub>H<sub>23</sub>NO<sub>3</sub> and its structural formula is:



### **CLINICAL PHARMACOLOGY**

#### **Mechanism of Action:**

Atropine is commonly classified as an anticholinergic or antiparasymphathetic (parasympatholytic) drug. More precisely, however, it is termed an antimuscarinic agent since it antagonizes the muscarine-like actions of acetylcholine and other choline esters.

Atropine inhibits the muscarinic actions of acetylcholine on structures innervated by postganglionic cholinergic nerves, and on smooth muscles, which respond to endogenous acetylcholine but are not so innervated. As with other antimuscarinic agents, the major action of atropine is a competitive or surmountable antagonism, which can be overcome by increasing the concentration of acetylcholine at receptor sites of the effector organ (e.g., by using anticholinesterase agents, which inhibit the enzymatic destruction of acetylcholine). The receptors antagonized by atropine are the peripheral structures that are stimulated or inhibited by muscarine, (i.e., exocrine glands and smooth and cardiac muscle). Responses to postganglionic cholinergic nerve stimulation may also be inhibited by atropine, but this occurs less readily than with responses to injected (exogenous) choline esters.

#### **Pharmacodynamics:**

Atropine reduces secretions in the mouth and respiratory passages, relieves the constriction and spasm of the respiratory passages, and may reduce the paralysis of respiration, which results from actions of the toxic agent on the central nervous system. Atropine-induced parasympathetic inhibition may be preceded by a transient phase of stimulation, especially on the heart where small doses first slow the rate before characteristic tachycardia develops due to paralysis of vagal control. Although mild vagal excitation occurs, the increased respiratory rate and occasionally increased depth of respiration produced by atropine are more probably the result of bronchiolar dilatation. Accordingly, atropine is an unreliable respiratory stimulant and large or repeated doses may depress respiration.

Adequate doses of atropine abolish various types of reflex vagal cardiac slowing or asystole. The drug also prevents or abolishes bradycardia or asystole produced by injection of choline esters, anticholinesterase agents or other parasympathomimetic drugs, and cardiac arrest produced by stimulation of the vagus. Atropine may also lessen the degree of partial heart block when vagal activity is an etiologic factor. In some individuals with complete heart block, the idioventricular rate may be accelerated by atropine; in others, the rate is stabilized. Occasionally, a large dose may cause atrioventricular (A-V) block and nodal rhythm. Atropine in clinical doses counteracts the peripheral dilatation and abrupt decrease in blood pressure produced by choline esters. However, when given by itself, atropine does not exert a striking or uniform effect on blood vessels or blood pressure. Systemic doses slightly raise systolic and lower diastolic pressures and can produce significant postural hypotension. Such doses also slightly increase cardiac output and decrease central venous pressure. Occasionally, therapeutic doses dilate cutaneous blood vessels, particularly in the “blush” area (atropine flush), and may cause atropine “fever” due to suppression of sweat gland activity especially in infants and small children.

#### **Pharmacokinetics:**

Atropine is rapidly and well absorbed after intramuscular administration. Atropine disappears rapidly from the blood and is distributed throughout the various body tissues and fluids. Much of the drug is destroyed by enzymatic hydrolysis, particularly in the liver; from 13 to 50% is excreted unchanged in the urine. Traces are found in various secretions, including milk. Atropine readily crosses the placental barrier and enters the fetal circulation.

The approximate  $C_{max}$  of atropine following 1.67 mg atropine given intramuscularly to adults by the 2 mg AtroPen<sup>®</sup> delivery system was  $9.6 \pm 1.5$  (mean  $\pm$  SEM) ng/mL. The mean  $T_{max}$  was 3 minutes. The  $T_{1/2}$  of intravenous atropine in pediatric subjects under 2 years is  $6.9 \pm 3.3$  (mean  $\pm$  SD) hours; in children over 2 years, the  $T_{1/2}$  is  $2.5 \pm 1.2$  (mean  $\pm$  SD) hours; in adults 16-58 years the  $T_{1/2}$  is  $3.0 \pm 0.9$  (mean  $\pm$  SD) hours; in geriatric patients 65-75 years it is  $10.0 \pm 7.3$  (mean  $\pm$  SD) hours. The protein binding of atropine is 14 to 22% in plasma. There are gender differences in the pharmacokinetics of atropine. The  $AUC_{(0-inf)}$  and  $C_{max}$  were 15% higher in females than males. The half-life of atropine is slightly shorter (approximately 20 minutes) in females than males.

#### **INDICATIONS AND USAGE**

The AtroPen<sup>®</sup> Auto-Injector is indicated for the treatment of poisoning by susceptible organophosphorous nerve agents having cholinesterase activity as well as organophosphorous or carbamate insecticides. **The AtroPen<sup>®</sup> Auto-Injector should be used by persons who have had adequate training in the recognition and treatment of nerve agent or insecticide intoxication.** Pralidoxime chloride may serve as an important adjunct to atropine therapy.

**The AtroPen<sup>®</sup> is intended as an initial treatment of the muscarinic symptoms of insecticide or nerve agent poisonings (generally breathing difficulties due to increased secretions); definitive medical care should be sought immediately.** The

AtroPen<sup>®</sup> Auto-Injector should be administered as soon as symptoms of organophosphorous or carbamate poisoning appear (usually tearing, excessive oral secretions, wheezing, muscle fasciculations, etc.). In moderate to severe poisoning, the administration of more than one AtroPen<sup>®</sup> may be required until atropinization is achieved (flushing, mydriasis, tachycardia, dryness of the mouth and nose). (See **DOSAGE AND ADMINISTRATION**) In severe poisonings, it may also be desirable to concurrently administer an anticonvulsant if seizure is suspected in the unconscious individual since the classic tonic-clonic jerking may not be apparent due to the effects of the poison. In poisonings due to organophosphorous nerve agents and insecticides it may also be helpful to concurrently administer a cholinesterase reactivator such as pralidoxime chloride.

#### **CONTRAINDICATIONS**

In the face of life-threatening poisoning by organophosphorous nerve agents and insecticides, there are no absolute contraindications for the use of atropine (see **WARNINGS**).

#### **WARNINGS**

**CAUTION! PRIMARY PROTECTION AGAINST EXPOSURE TO CHEMICAL NERVE AGENTS AND INSECTICIDE POISONING IS THE WEARING OF PROTECTIVE GARMENTS INCLUDING MASKS DESIGNED SPECIFICALLY FOR THIS USE.**

**INDIVIDUALS SHOULD NOT RELY SOLELY UPON ANTIDOTES SUCH AS ATROPINE AND PRALIDOXIME TO PROVIDE COMPLETE PROTECTION FROM CHEMICAL NERVE AGENTS AND INSECTICIDE POISONING.**

Patients who have had previous anaphylactic reactions to atropine who have mild symptoms of organophosphorous or nerve agent poisoning should not be treated without adequate medical supervision.

While AtroPen<sup>®</sup> can be administered to all individuals with a life-threatening exposure to organophosphorous nerve agents and insecticides, it should be administered with extreme caution to individuals with the following disorders when the symptoms of nerve agent poisoning are less severe: individuals who are hypersensitive to any component of the product, disorders of heart rhythm such as atrial flutter, severe narrow angle glaucoma, pyloric stenosis, prostatic hypertrophy, significant renal insufficiency, or a recent myocardial infarction.

More than one dose of atropine (AtroPen<sup>®</sup> Auto-Injector) may be necessary initially, especially when exposure is massive or symptoms are severe. **However, no more than three doses should be administered unless under the supervision of trained**

**medical personnel.** High doses of atropine may be required for many hours following high-dose exposure to maintain atropinization. (See **DOSAGE AND ADMINISTRATION**)

Children and the elderly may be more susceptible to the pharmacologic effects of atropine.

Severe difficulty in breathing requires artificial respiration in addition to the use of atropine since atropine is not dependable in reversing the weakness or paralysis of the respiratory muscles.

## **PRECAUTIONS**

**General:** The desperate condition of the organophosphorous-poisoned individual will generally mask such minor signs and symptoms of atropine treatment as have been noted in normal subjects.

Atropine should be used with caution in individuals with cardiac disease. Conventional systemic doses may precipitate acute glaucoma in susceptible individuals, convert partial pyloric stenosis into complete pyloric obstruction, precipitate urinary retention in individuals with prostatic hypertrophy, or cause inspissation of bronchial secretions and formation of dangerous viscid plugs in individuals with chronic lung disease.

**Laboratory Tests:** Treatment of organophosphorous nerve agent and insecticide poisoning should be instituted without waiting for the results of laboratory tests. Red blood cell and plasma cholinesterase, and urinary paranthrophenol measurements (in the case of parathion exposure) may be helpful in confirming the diagnosis and following the course of the illness. A reduction in red blood cell cholinesterase concentration to below 50% of normal has been seen only with organophosphorous ester poisoning.

**Information for Patients:** Appropriate steps must be taken to insure that users understand the indications for and use of the AtroPen<sup>®</sup>, including review of symptoms of poisoning and operation of the AtroPen<sup>®</sup> (see **DOSAGE AND ADMINISTRATION**).

**Drug Interactions:** When atropine and pralidoxime are used together, the signs of atropinization (flushing, mydriasis, tachycardia, dryness of the mouth and nose) may occur earlier than might be expected than when atropine is used alone because pralidoxime may potentiate the effect of atropine.

The following precaution should be kept in mind in the treatment of anticholinesterase poisoning although it does not bear directly on the use of atropine and pralidoxime. Since barbiturates are potentiated by the anticholinesterases, they should be used cautiously in the treatment of convulsions.

**Carcinogenesis, Mutagenesis, Impairment of Fertility:** No reports regarding the potential of atropine for carcinogenesis, mutagenesis, or impairment of fertility have been published in the literature. Since atropine is indicated for short-term emergency use only, no investigations of these aspects have been conducted.

**Pregnancy: Teratogenic Effects - Pregnancy Category C:** Adequate animal reproduction studies have not been conducted with atropine. It is not known whether atropine can cause fetal harm when administered to a pregnant woman or if these agents can affect reproductive capacity. Atropine should be administered to a pregnant woman only if clearly needed.

**Nursing Mothers:** Atropine is found in human milk in trace amounts. Caution should be exercised when atropine is administered to a nursing woman.

**Pediatric Use:** A review of published literature supports the safety and effectiveness of atropine in the setting of organophosphate insecticide poisoning in all pediatric age groups. The starting dose is 0.05 mg/kg IM every 5 to 20 minutes as needed to provide complete atropinization. (See **ADVERSE REACTIONS** and **DOSAGE AND ADMINISTRATION** sections).

**Geriatric Use:** In general, dose selection for an elderly individual should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy.

## **ADVERSE REACTIONS**

Mild to moderate pain may be experienced at the site of injection.

The major and most common side effects of atropine can be attributed to its antimuscarinic action. These include dryness of the mouth, blurred vision, photophobia, confusion, headache, dizziness, tachycardia, palpitations, flushing, urinary hesitance or retention, constipation, abdominal distention, nausea, vomiting, loss of libido and impotency. Anhidrosis may produce heat intolerance and impairment of temperature regulation especially in a hot environment. Larger or toxic doses may produce such central effects as restlessness, tremor, fatigue, locomotor difficulties, delirium, followed by hallucinations, depression and ultimately, medullary paralysis and death. Large doses can also lead to circulatory collapse. In such cases, blood pressure declines and death due to respiratory failure may ensue following paralysis and coma. Hypersensitivity reactions will occasionally occur with atropine; these are usually seen as skin rashes, on occasion progressing to exfoliation. Adverse events seen in pediatrics are similar to those that occur in adult patients although central nervous system complaints are often seen earlier and at lower doses.

When atropine and pralidoxime are used together, the signs of atropinization may occur earlier than might be expected than when atropine is used alone. This is especially true if the total dose of atropine has been large and the administration of pralidoxime has been delayed. Excitement and manic behavior immediately following recovery of consciousness have been reported in several cases. However, similar behavior has occurred in cases of organophosphate poisoning that were not treated with pralidoxime.

Amitai et al (JAMA 1990) evaluated the safety of AtroPen<sup>®</sup> 0.5 mg, 1 mg and 2 mg in a case series of 240 children who received AtroPen<sup>®</sup> inappropriately (i.e., no nerve agent exposure) during the 1990 Gulf War Period. Overall, severity of atropinization followed a nonlinear correlation with dose. Estimated doses up to 0.045 mg/kg produced no signs of atropinization. Estimated doses between 0.045 mg/kg to 0.175 mg/kg and even greater than 0.175 mg/kg were associated with mild and severe effects respectively.

Actual dosage received by children may have been considerably lower than estimated since incomplete injection in many cases was suspected. Regardless, adverse events reported were generally mild and self-limited. Few children required hospitalization. Adverse reactions reported were dilated pupils (43%), tachycardia (39%), dry membranes (35%), flushed skin (20%), temperature 37.8°C or 100°F (4%) and neurologic abnormalities (5%). There was also local pain and swelling. In 91 children with ECGs, no abnormalities were noted other than sinus tachycardia; 22 children had severe tachycardia of 160-190 bpm. Neurologic abnormalities consisted of irritability, agitation, confusion, lethargy, and ataxia.

The following adverse reactions were reported in published literature for atropine in both adults and children:

*Cardiovascular:* Sinus tachycardia, supraventricular tachycardia, junctional tachycardia, ventricular tachycardia, bradycardia, palpitations, ventricular arrhythmia, ventricular flutter, ventricular fibrillation, atrial arrhythmia, atrial fibrillation, atrial ectopic beats, ventricular premature contractions, bigeminal beats, trigeminal beats, nodal extrasystole, ventricular extrasystole, supraventricular extrasystole, asystole, cardiac syncope, prolongation of sinus node recovery time, cardiac dilation, left ventricular failure, myocardial infarction, intermittent nodal rhythm (no P wave), prolonged P wave, shortened PR segment, R on T phenomenon, shortened RT duration, widening and flattening of QRS complex, prolonged QT interval, flattening of T wave, repolarization abnormalities, altered ST-T waves, retrograde conduction, transient AV dissociation, increased blood pressure, decreased blood pressure, labile blood pressure, weak or palpable peripheral pulses.

*Eye:* Mydriasis, blurred vision, pupils poorly reactive to light, photophobia, decreased contrast sensitivity, decreased visual acuity, decreased accommodation, cycloplegia, strabismus, heterophoria, cyclophoria, acute angle closure glaucoma, conjunctivitis, keratoconjunctivitis sicca, blindness, tearing, dry eyes/dry conjunctiva, irritated eyes, crusting of eyelid, blepharitis.

*Gastrointestinal:* Nausea, abdominal pain, paralytic ileus, decreased bowel sounds, distended abdomen, vomiting, delayed gastric emptying, decreased food absorption, dysphagia.

*General:* Hyperpyrexia, lethargy, somnolence, chest pain, excessive thirst, weakness, syncope, insomnia, tongue chewing, dehydration, feeling hot, injection site reaction.

*Immunologic:* Anaphylactic reaction.

*Special Investigations:* Leukocytosis, hyponatremia, elevated BUN, elevated hemoglobin, elevated erythrocytes, low hemoglobin, hypoglycemia, hyperglycemia, hypokalemia, increase in photic stimulation on EEG, signs of drowsiness on EEG, runs of alpha waves on EEG, alpha waves (EEG) blocked upon opening eyes.

*Metabolic:* Failure to feed.

*Central Nervous System:* Ataxia, hallucinations (visual or aural), seizures (generally tonic-clonic), abnormal movements, coma, confusion, stupor, dizziness, amnesia, headache, diminished tendon reflexes, hyperreflexia, muscle twitching, opisthotonos, Babinski's reflex/Chaddock's reflex, hypertonia, dysmetria, muscle clonus, sensation of intoxication, difficulty concentrating, vertigo, dysarthria.

*Psychiatric:* Agitation, restlessness, delirium, paranoia, anxiety, mental disorders, mania, withdrawn behavior, behavior changes.

*Genitourinary:* Difficulty in micturation, urine urgency, distended urinary bladder, urine retention, bed-wetting.

*Pulmonary:* Tachypnea, slow respirations, shallow respirations, breathing difficulty, labored respirations, inspiratory stridor, laryngitis, laryngospasm, pulmonary edema, respiratory failure, subcostal recession.

*Dermatologic:* Dry mucous membranes, dry warm skin, flushed skin, oral lesions, dermatitis, petechiae, rash, macular rash, papular rash, maculopapular rash, scarlatiniform rash, erythematous rash, sweating/moist skin, cold skin, cyanosed skin, salivation.

## **DRUG ABUSE AND DEPENDENCE**

Atropine possesses no known potential for dependence.

## **OVERDOSAGE**

### **Symptoms:**

Serious overdose with atropine is characterized by widespread paralysis of parasympathetically innervated organs. Dry mucous membranes, widely dilated and nonresponsive pupils, tachycardia, fever and cutaneous flush are especially prominent, as are mental and neurological symptoms. Disorientation, mania, hallucinations, gait disturbances and symptoms may last 48 hours or longer. In instances of severe intoxication, respiratory depression, coma, circulatory collapse and death may occur.

The fatal dose of atropine is not known. In the treatment of organophosphorous poisoning, cumulative doses of approximately 2300-3300 mg or more have been administered over several days to 4-5 weeks. In children, medical literature published prior to 1951 reports four deaths, all in patients 10 months to 3 years of age, and all associated with atropine eye drops or ointment. Total estimated ophthalmic doses were 1.6, 2, 4, and 18 mg given as a single dose (2 mg) or over 1-2 days. Review of current published literature since 1950 identified no pediatric deaths associated with atropine. The few deaths in adults were generally seen using typical clinical doses of atropine often in the setting of bradycardia associated with an acute myocardial infarction.

With a dose as low as 0.5 mg, undesirable symptoms or responses of overdose may occur. These increase in severity and extent with larger doses of the drug (excitement, hallucinations, delirium and coma). Extreme hyperthermia in a newborn has been reported with as little as 0.065 mg orally. However, in the presence of organophosphorous poisoning, much higher doses of atropine appear to be tolerated and required for optimal therapy.

**Treatment:**

Supportive treatment should be administered as indicated. If respiration is depressed, artificial respiration with oxygen is necessary. Ice bags, alcohol sponges or a hypothermia blanket may be required to reduce fever, especially in children. Catheterization may be necessary if urinary retention occurs. Since atropine elimination takes place through the kidney, output must be maintained and increased if possible, however, dialysis has not been shown to be helpful in overdose situations. Intravenous fluids may be indicated. Because of the affected person's photophobia, the room should be darkened.

In the event of toxic overdosage, a short-acting barbiturate or diazepam may be given as needed to control marked excitement and convulsions. Large doses for sedation should be avoided because central depressant action may coincide with the depression occurring late in atropine poisoning. Central stimulants are not recommended. Physostigmine, given as an atropine antidote by slow intravenous injection of 1 to 4 mg (0.5 to 1.0 mg in children), rapidly abolishes delirium and coma caused by large doses of atropine in most situations. Since physostigmine has a short duration of action, the patient may again lapse into coma after one or two hours and repeated doses are likely to be required. Neostigmine, pilocarpine and methacholine are of little real benefit, since they do not penetrate the blood-brain barrier.

**DOSAGE AND ADMINISTRATION**

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**INDIVIDUALS SHOULD NOT RELY SOLELY UPON THE AVAILABILITY OF ANTIDOTES SUCH AS ATROPINE AND PRALDOXIME TO PROVIDE COMPLETE PROTECTION FROM CHEMICAL NERVE AGENT AND INSECTICIDE POISONING.**

**Immediate evacuation from the contaminated environment is essential. Decontamination of the poisoned individual should occur as soon as possible.**

The AtroPen<sup>®</sup> Auto-Injector is indicated for the treatment of poisoning by susceptible organophosphorous nerve agents having cholinesterase activity as well as organophosphorous or carbamate insecticides. **The AtroPen<sup>®</sup> Auto-Injector should be used by persons who have had adequate training in the recognition and treatment of nerve agent or insecticide intoxication.** Pralidoxime chloride may serve as an important adjunct to atropine therapy.

**The AtroPen<sup>®</sup> is intended as an initial treatment of the muscarinic symptoms of insecticide or nerve agent poisonings (generally breathing difficulties due to increased secretions); definitive medical care should be sought immediately.** The AtroPen<sup>®</sup> Auto-Injector should be administered as soon as symptoms of organophosphorous or carbamate poisoning appear (usually tearing, excessive oral secretions, wheezing, muscle fasciculations, etc.) In moderate to severe poisoning, the administration of more than one AtroPen<sup>®</sup> may be required until atropinization is achieved (flushing, mydriasis, tachycardia, dryness of the mouth and nose). In severe poisonings, it may also be desirable to concurrently administer an anticonvulsant if seizure is suspected in the unconscious individual since the classic tonic-clonic jerking may not be apparent due to the effects of the poison. In poisonings due to organophosphorous nerve agents and insecticides, it may also be helpful to concurrently administer a cholinesterase reactivator such as pralidoxime chloride.

It is recommended that three (3) AtroPen<sup>®</sup> Auto-Injectors be available for use in each person at risk for nerve agent or organophosphate insecticide poisoning; one (1) for mild symptoms plus two (2) more for severe symptoms as described below. No more than three (3) AtroPen<sup>®</sup> injections should be used unless the patient is under the supervision of a trained medical provider.

Different dose strengths of the AtroPen<sup>®</sup> are available depending on the recipient's age and weight.

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• Adults and children weighing over 90 lbs (41 kg) (generally over 10 years of age)	AtroPen <sup>®</sup> 2 mg (green)
• Children weighing 40 lbs to 90 lbs (18 to 41 kg) (generally 4 to 10 years of age)	AtroPen <sup>®</sup> 1 mg (dark red)
• Children weighing 15 lbs to 40 lbs (7 to 18 kg) (generally 6 months to 4 years of age)	AtroPen <sup>®</sup> 0.5 mg (blue)
• Infants weighing less than 15 lbs (7 kg) (generally less than 6 months of age)	AtroPen <sup>®</sup> 0.25 mg (yellow)

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### **Treatment of MILD SYMPTOMS:**

**One (1)** AtroPen<sup>®</sup> is recommended if two or more **MILD** symptoms of nerve agent (nerve gas) or insecticide exposure appear in situations where exposure is known or suspected.

**Two (2)** additional AtroPen<sup>®</sup> injections given in rapid succession are recommended 10 minutes after receiving the first AtroPen<sup>®</sup> injection if the victim has any of the **SEVERE** symptoms listed below. If possible, a person other than the victim should administer the second and third AtroPen<sup>®</sup> injections.

### **Treatment of SEVERE SYMPTOMS:**

If a victim is encountered who is either unconscious or has any of the **SEVERE** symptoms listed below, immediately administer **three (3)** AtroPen<sup>®</sup> injections into the victim's mid-lateral thigh in rapid succession using the appropriate weight-based AtroPen<sup>®</sup> dose.

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**MILD SYMPTOMS** of nerve agent or insecticide exposure include the following:

- Blurred vision, miosis
- Excessive unexplained teary eyes\*
- Excessive unexplained runny nose\*
- Increased salivation such as sudden unexplained excessive drooling\*
- Chest tightness or difficulty breathing
- Tremors throughout the body or muscular twitching
- Nausea and/or vomiting
- Unexplained wheezing or coughing
- Acute onset of stomach cramps
- Tachycardia or bradycardia

**SEVERE SYMPTOMS** of exposure to nerve agent or insecticides include the following:

- Strange or confused behavior
- Severe difficulty breathing or severe secretions from the lungs/airway
- Severe muscular twitching and general weakness\*\*
- Involuntary urination and defecation (feces)\*
- Convulsions
- Unconsciousness

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### **Symptoms in infants and young children**

\* These symptoms are sometimes observed in healthy infants and young children. In this age group, these symptoms are less reliable than other symptoms listed. Symptoms must be considered collectively when nerve agent or pesticide exposure is known or suspected.

\*\* Infants may become drowsy or unconscious, with muscle floppiness rather than muscle twitching, soon after exposure to nerve agents or pesticides.

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All victims should be evacuated immediately from the contaminated environment. Medical help should be sought immediately. Protective masks and clothing should be used when available. Decontamination procedures should be undertaken as soon as possible. If dermal exposure has occurred, clothing should be removed and the hair and skin washed thoroughly with sodium bicarbonate or alcohol as soon as possible.

Emergency care of the severely poisoned individual should include removal of oral and bronchial secretions, maintenance of a patent airway, supplemental oxygen and, if necessary, artificial ventilation. In general, atropine should not be used until cyanosis has been overcome since atropine may produce ventricular fibrillation and possible seizures in the presence of hypoxia.

Pralidoxime (if used) is most effective if administered immediately or soon after the poisoning. Generally, little is accomplished if pralidoxime is given more than 36 hours after termination of exposure unless the poison is known to age slowly or re-exposure is possible, such as in delayed continuing gastrointestinal absorption of ingested poisons. Fatal relapses, thought to be due to delayed absorption, have been reported after initial improvement. Continued administration for several days may be useful in such patients. Close supervision of all moderately to severely poisoned patients is indicated for at least 48 to 72 hours.

An anticonvulsant such as diazepam may be administered to treat convulsions if suspected in the unconscious individual. The effects of nerve agents and some insecticides can mask the motor signs of a seizure.

**IMPORTANT: PHYSICIANS AND/OR OTHER MEDICAL PERSONNEL ASSISTING EVACUATED VICTIMS OF NERVE AGENTS AND INSECTICIDE POISONING SHOULD AVOID EXPOSING THEMSELVES TO CONTAMINATION BY THE VICTIM'S CLOTHING. AGGRESSIVE AND SAFE DECONTAMINATION IS STRONGLY SUGGESTED.**

**Instructions for administering AtroPen<sup>®</sup>** (please refer to the illustrated dose specific **Self Aid and Caregiver Directions for Use** at the end of this package insert):

**Warning: Giving additional AtroPen<sup>®</sup> injections by mistake in the absence of actual nerve agent or insecticide poisoning may cause an overdose of atropine which could result in temporary incapacitation (inability to walk properly, see clearly or think clearly for several or more hours). Patients with cardiac disease may be at risk for serious adverse events, including death.**

## HOW SUPPLIED

The AtroPen<sup>®</sup> is supplied in four strengths. The AtroPen<sup>®</sup> 0.25 mg (NDC 11704-107-01), provides Atropine Injection (atropine, 0.21 mg/0.3 mL), AtroPen<sup>®</sup> 0.5 mg (NDC 11704-104-01) provides Atropine Injection (atropine, 0.42 mg/0.7 mL), AtroPen<sup>®</sup> 1 mg (NDC 11704-105-01) provides Atropine Injection (atropine, 0.84 mg/0.7 mL), and AtroPen<sup>®</sup> 2 mg (NDC 11704-106-01) provides Atropine Injection (atropine, 1.67 mg/0.7 mL) in sterile solution for intramuscular injection. The AtroPen<sup>®</sup> is a self-contained unit designed for self or caregiver administration.

**Store at 25°C (77°F); excursions permitted to 15–30°C (59–86°F)**

[see USP Controlled Room Temperature]

**Keep from freezing. Protect from light.**

Manufactured by:

MERIDIAN MEDICAL TECHNOLOGIES™, INC.

COLUMBIA, MD 21046

A subsidiary of King Pharmaceuticals<sup>®</sup>, Inc. 1-877-248-7275

0001166

Rev.11/05

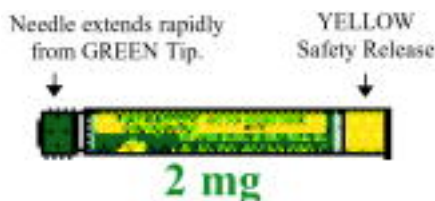
**Self Aid and Caregiver Aid Directions for Use.**

**FOLLOW THESE INSTRUCTIONS ONLY WHEN READY TO ADMINISTER ATROPINE**

### Step 1

#### USE THE CORRECT DOSE

Adults and children weighing over 90 lbs. (41 kg)  
(generally over 10 years of age)  
2 mg AtroPen<sup>®</sup> (**GREEN LABEL**).



Children weighing 40 lbs. to 90 lbs. (18 to 41 kg)  
(generally 4 to 10 years of age)  
1 mg AtroPen<sup>®</sup> (**DARK RED LABEL**)



Children weighing 15 lbs. to 40 lbs. (7 to 18 kg)  
(generally 6 months to 4 years of age)  
0.5 mg AtroPen<sup>®</sup> (**BLUE LABEL**)



Infants weighing less than 15 lbs. (7 kg)  
(generally less than six months of age)  
0.25 mg AtroPen<sup>®</sup> (**YELLOW LABEL**)



### Step 2

#### KNOW NERVE AGENT AND INSECTICIDE POISONING SYMPTOMS

In an environment where nerve agent (or nerve gas) or insecticide exposure is known or suspected, the following are mild and severe symptoms of nerve agent intoxication. **You may not have all of the symptoms:**

##### MILD SYMPTOMS

- Blurred vision and sore eyes
- Teary eyes\*
- Runny nose\*
- Increased salivation such as sudden drooling\*
- Chest tightness or difficulty breathing

##### SEVERE SYMPTOMS

- Strange or confused behavior
- Severe difficulty breathing or severe secretions from lungs/airway
- Severe muscular twitching and general weakness\*\*
- Involuntary urination and defecation (feces)\*
- Convulsions

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>- Tremors throughout the body or muscular twitching</li><li>- Nausea and vomiting</li><li>- Involuntary secretions (phlegm from lungs/airway)</li></ul> | <ul style="list-style-type: none"><li>- Unconsciousness</li></ul> |
|---|---|

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#### Symptoms in infants and young children

\* These symptoms are sometimes observed in healthy infants and young children. In this age group, these symptoms are less reliable than other symptoms listed. Symptoms must be considered collectively where nerve agent or pesticide exposure is known or suspected.

\*\*Infants may become drowsy or unconscious, with muscle floppiness rather than muscle twitching, soon after exposure to nerve agents or pesticides.

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### **Step 3 TREATMENT OF MILD SYMPTOMS**

**FIRST DOSE:** Give one (1) AtroPen<sup>®</sup> if you experience two or more MILD symptoms of nerve gas or insecticide exposure. **Look for a helper and have them check you for continued or worsening symptoms. Get medical attention immediately.**

**ADDITIONAL DOSES:** Two (2) additional AtroPen<sup>®</sup> injections given in rapid succession are recommended 10 minutes after receiving the first AtroPen<sup>®</sup> injection if the victim develops any of the **SEVERE** symptoms listed above. If possible, a person other than the victim should administer the second and third AtroPen<sup>®</sup> injections.

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### **TREATMENT OF SEVERE SYMPTOMS**

If a victim is encountered who is either unconscious or has any of the **SEVERE** symptoms listed above, immediately administer **three** (3) AtroPen<sup>®</sup> injections into the victim's mid-lateral thigh in rapid succession using the appropriate weight-based AtroPen<sup>®</sup> dose.

***WARNING:** Giving additional AtroPen<sup>®</sup> injections by mistake in the absence of nerve agent or insecticide poisoning may cause an overdose of atropine which might result in temporary incapacitation (inability to see clearly or walk properly for several or more hours). Patients with cardiac disease may be at risk for serious adverse events, including death.*

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### **Step 4 DIRECTIONS FOR THE USE OF 2 mg, 1 mg, and 0.5 mg ATROPEN<sup>®</sup> (See below for 0.25 mg dose directions)**



(A) Snap the grooved end of the plastic sleeve down and over the yellow safety release. Remove the AtroPen<sup>®</sup> from the plastic sleeve.

**Caution: Do not place fingers on green tip.**

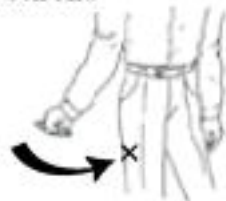


(B) Firmly grasp the AtroPen<sup>®</sup> with the green tip pointed down.



(C) Pull off the yellow safety release with your other hand

Self Aid



Caregiver Aid



(D) Aim and firmly jab the green tip straight down (a 90° angle) against the outer thigh. The AtroPen<sup>®</sup> device will activate and deliver the medicine when you do this. **It is okay to inject through clothing, but make sure pockets at the injection site are empty.**

Very thin people and small children should also be injected in the thigh, but before giving the AtroPen<sup>®</sup>, bunch up the thigh to provide a thicker area for injection.

Self Aid



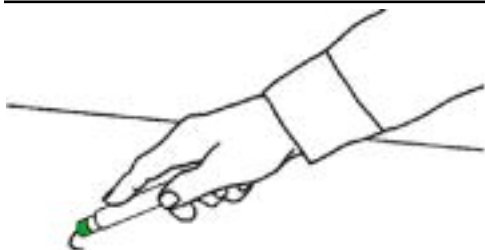
Caregiver Aid



(E) Hold the auto-injector firmly in place for at least 10 seconds to allow the injection to finish.



(F) Remove the AtroPen<sup>®</sup> and massage the injection site for several seconds. If the needle is not visible, check to be sure the yellow safety release has been removed, and repeat steps D and E, but press harder.



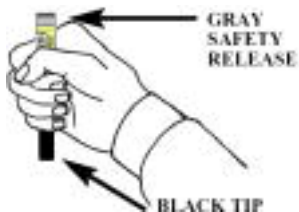
(G) After use, using a hard surface, bend the needle back against the AtroPen<sup>®</sup> and either pin the used AtroPen<sup>®</sup> to the victim's clothing or show the used AtroPen<sup>®</sup> Auto-Injectors to the first medical person you see. This will allow medical personnel to see the number and dose of AtroPen<sup>®</sup> Auto-Injectors administered. Move yourself and the exposed individual away from the contaminated area right away. Try to find medical help.

#### DIRECTIONS FOR THE USE OF 0.25 mg ATROPEN<sup>®</sup>



(A) Remove the plastic cap from the yellow tube and slide the AtroPen<sup>®</sup> from tube.

**Caution: Do not place fingers on black tip**



(B) Firmly grasp the AtroPen<sup>®</sup> with the black tip pointed down.



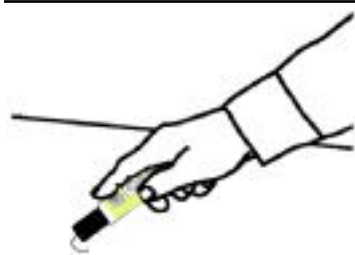
(C) Pull off the gray safety release with your other hand.



(D) Bunch up the thigh to provide a thicker area for injection. Aim and firmly jab the black tip straight down (a 90° angle) against the outer thigh. The AtroPen<sup>®</sup> device will activate and deliver the medicine when you do this.



(E) Hold the auto-injector firmly in place for at least 10 seconds to allow the injection to finish.



(F) Remove the AtroPen<sup>®</sup> and massage the injection site for several seconds. If the needle is not visible, check to be sure the gray safety release has been removed, and repeat steps D and E, but press harder.

(G) After use using a hard surface, bend the needle back against the AtroPen<sup>®</sup> and either pin the used AtroPen<sup>®</sup> to the victim's clothing or show the used AtroPen<sup>®</sup> Auto-Injectors to the next medical person you see. This will allow medical personnel to see the number and dose of AtroPen<sup>®</sup> Auto-Injectors administered. Move yourself and the exposed individual away from the contaminated area right away. Seek further medical help.

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AtroPen<sup>®</sup> is a registered trademark of  
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Columbia, MD 21046

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